Federal Aviation Administration – Regulations and Policies
Aviation Rulemaking Advisory Committee

Transport Airplane and Engine Issue Area
Loads and Dynamics Harmonization Working Group

**Task 1 – General Design Loads**

# Task Assignment

## Aviation Rulemaking Advisory Committee; Loads and Dynamics Harmonization Working Group

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of establishment of Loads and Dynamics Harmonization Working Group.

**SUMMARY:** Notice is given of the establishment of the Loads and Dynamics Harmonization Working Group of the Aviation Rulemaking Advisory Committee (ARAC). This notice informs the public of the activities of the ARAC on transport airplane and engine issues.

**FOR FURTHER INFORMATION CONTACT:** Mr. William J. (Joe) Sullivan, Assistant Executive Director, Aviation Rulemaking Advisory Committee, Aircraft Certification Service (AIR-3), 800 Independence Avenue, SW., Washington, DC 20591, Telephone: (202) 267-9554; FAX: (202) 267-5364.

**SUPPLEMENTARY INFORMATION:** The Federal Aviation Administration (FAA) has established an Aviation Rulemaking Advisory Committee (ARAC) (56 FR 2190, January 22, 1991; and 58 FR 9230, February 19, 1993). One area the ARAC deals with is transport airplane and engine issues (56 FR 31995; July 12, 1991). These issues involve the airworthiness standards for transport airplanes, engines and propellers in parts 25, 33 and 35 of the Federal Aviation Regulations (14 CFR parts 25, 33 and 35) which are the responsibility of the FAA Director of Aircraft Certification.

The FAA announced at the Joint Aviation Authorities (JAA)-Federal Aviation Administration (FAA) Harmonization Conference in Toronto, Ontario, Canada, (June 2-5, 1992) that it would consolidate within the Aviation Rulemaking Advisory Committee structure an ongoing objective to "harmonize" the Joint Aviation Requirements (JAR) and the Federal Aviation Regulations (FAR). Coincident with that announcement, the FAA assigned to the ARAC those projects related to JAR/FAR 25, 33 and 35 harmonization which were then in the process of being coordinated between the JAA and the FAA. The harmonization process included the intention to present the results of JAA/FAA coordination to the public in the form of either a Notice of Proposed Rulemaking or an advisory circular—an objective comparable to and compatible with that assigned to the Aviation Rulemaking Advisory Committee. The Loads and Dynamics Harmonization Working Group is being formed to address loads and dynamics issues in JAR/FAR parts 25 identified below. The Loads and Dynamics Harmonization Working Group will forward recommendations to the ARAC which will determine whether to forward them to the FAA.

Specifically, the Working Group's tasks are the following: The Loads and Dynamics Harmonization Working Group is charged with making recommendations to the ARAC concerning the FAA disposition of the following subjects recently coordinated between the JAA and the FAA:

**Task 1—General Design Loads**

Develop new or revised requirements, and associated advisory and guidance material, for the general design loads for transport category airplanes (FAR 25.331, 25.335, 25.341, 25.345, 25.351, 25.371, 25.427, 25.483, 25.511, 25.561 and 25.963 and other conforming changes).

**Task 2—Engine Torque and Gyroscopic Loads**

Develop new or revised requirements, and associated advisory and guidance material, for determining the design loads for engine seizure conditions (FAR 25.361, 25.371 and other conforming changes).

**Task 3—Flutter, Deformation and Fail-Safe Criteria:**

Develop new or revised advisory and guidance material for flutter, deformation and fail-safe criteria (FAR 25.629).

**Reports**

A. Recommend time line(s) for completion of each task, including rationale, for consideration at the meeting of the ARAC to consider transport airplane and engine issues held following publication of this notice.

B. Give a detailed conceptual presentation on each task to the ARAC before proceeding with the work stated under items C and D, below. If tasks 1 and 2 require the development of more than one Notice of Proposed Rulemaking, identify what proposed amendments will be included in each notice.

C. Draft one or more Notices of Proposed Rulemaking for Tasks 1 and 2 proposing new or revised requirements, a supporting economic analysis and other required analysis, advisory and guidance material, and any other collateral documents the Working Group determines to be needed.

D. Draft appropriate advisory and guidance material for Task 3.

E. Give a status report on each task at each meeting of the ARAC held to consider transport airplane and engine issues.

The Loads and Dynamics Harmonization Working Group will be comprised of experts from those organizations having an interest in the tasks assigned. A Working Group member need not necessarily be a representative of one of the member organizations of the ARAC. An individual who has expertise in the subject matter and wishes to become a member of the Working Group should *write* the person listed under the caption "FOR FURTHER INFORMATION CONTACT" expressing that desire, describing his or her interest in the task, and the expertise he or she would bring to the Working Group. The request will be reviewed with the Chairs of the ARAC Transport Airplane and Engine Interest Issues and the Loads and Dynamics Working Group, and the individual will be advised whether or not the request can be accommodated.

The Secretary of Transportation has determined that the information and use of the ARAC is necessary in the public interest in connection with the performance of duties of the FAA by law. Meetings of the ARAC will be open to the public except as authorized by section 10(d) of the Federal Advisory Committee Act. Meetings of the Loads and Dynamics Harmonization Working Group will not be open to the public except to the extent that individuals with an interest and expertise are selected to participate. No public announcement of Working Group meetings will be made.

Issued in Washington, DC, on March 8, 1993.

**William J. Sullivan,**

*Assistant Executive Director for Transport Airplane and Engine Issues, Aviation Rulemaking Advisory Committee.*

[FR Doc. 93-5815 Filed 3-12-93; 8:45 am]

BILLING CODE 4910-13-M

# Recommendation Letter

400 Main Street
East Hartford, Connecticut 06108

Pratt & Whitney
A United Technologies Company

#1

December 23, 1998

Department of Transportation
Federal Aviation Administration
800 Independence Avenue
Washington, DC 20591

Attn: Mr. Joseph Hawkins, ARM-1

Subject: Request for Formal Economic and Legal Review

Dear Joe:

The Transport Airplane and Engine Issues Group is pleased to submit the attached package containing Draft NPRM for FAR 25.331, Checked Pitching Maneuver to the FAA for formal legal and economic review. This package has been prepared by the Loads and Dynamics Harmonization Working Group.

Please contact us if additional information is required.

Sincerely,

Craig R. Bolt

Craig R. Bolt
Assistant Chair, ARAC TAEIG
boltcr@pweh.com
(Ph: 860-565-9348/Fax: 860-565-5794)

CRB/amr

cc: Dorenda Baker
Bob Benjamin
Vic Card
Chuck Huber (attachment)
Effie Upshaw

# Recommendation

[4910-13]

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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR part 25**

**[Docket No. ; Notice No. ]**

**RIN:**

**Revised Checked Pitching Maneuver Requirement for Transport Airplanes**

**AGENCY**: Federal Aviation Administration (FAA), DOT.

**ACTION**: Notice of proposed rulemaking (NPRM).

**SUMMARY**: This notice proposes to revise the checked pitching maneuver design load requirement of 14 CFR part 25 for transport category airplanes by incorporating changes developed in cooperation with the Joint Aviation Authorities (JAA) of Europe, Transport Canada and the U.S., European, and Canadian aviation industries through the Aviation Rulemaking Advisory Committee (ARAC). A checked pitching maneuver results when the cockpit pitch control is displaced to cause the airplane to pitch, but then the control is displaced in the opposite direction to arrest (check) the pitching motion. This rulemaking action concerns the design loads associated with the checked pitching maneuver and is necessary because differences between the current U.S. and European requirements impose unnecessary costs on airplane manufacturers. These proposals are intended to benefit the public interest by standardizing certain requirements, concepts, and procedures contained in the airworthiness standards without reducing, but potentially enhancing, the current level of safety.

**DATES**: Send your comments on or before [insert a date 90 days after the date of publication in the Federal Register]

**ADDRESSES:**

Address your comments to the Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh Street, SW., Washington, DC 20590-0001. You must identify the Docket No. FAA-2001- at the beginning of your comments, and you should submit two copies of your comments. If you wish to receive confirmation that the FAA received your comments, include a self-addressed, stamped postcard.

You may also submit comments through the Internet to http://dms.dot.gov. You may review the public docket containing comments to these proposed regulations in person in the Dockets Office between 9:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. The Dockets Office is on the plaza level of the NASSIF Building at the Department of Transportation at the above address. Also, you may review public dockets on the Internet at http://dms.dot.gov.

**FOR FURTHER INFORMATION CONTACT**: Todd Margin, Airframe and Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, FAA 1601 Lind Avenue, SW., Renton, WA 98055-4056; telephone (425) 227-1179, facsimile: 425-227-1320.

**SUPPLEMENTARY INFORMATION**

**Comments Invited**

Interested persons are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments relating to the environmental, energy, or economic impact that might result from adoption of proposals

contained in this notice are invited. Substantive comments should be accompanied by cost estimates. Commenters should identify the regulatory docket or notice number and submit comments in duplicate to the Rules Docket address specified above.

All comments will be considered by the Administrator before taking action on the proposed rulemaking. The proposals contained in this notice may be changed in light of comments received. All comments received will be available in the Rules Docket, both before and after the closing date for comments, for examination by interested persons. A report summarizing each substantive public contact with FAA personnel concerning this rulemaking will be filed in the docket.

Commenters wishing the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. ." The postcard will be date stamped and returned to the commenter.

**Availability of Rulemaking Documnts**

You can get an electronic copy using the Internet by taking the following steps:

(1) Go to the search function of the Department of Transportation's electronic Docket Management System (DMS) web page (http://dms.dot.gov/search).

(2) On the search page type in the last four digits of the Docket number shown at the beginning of this notice. Click on "search."

(3) On the next page, which contains the Docket summary information for the Docket you selected, click on the document number of the item you wish to view.

You can also get an electronic copy using the Internet through FAA's web page at http://www.faa.gov/avr/arm/nprm/nprm.htm or the Federal Register's web page at http://www.access.gpo.gov/su_docs/aces/aces140.html.

You can also get a copy by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267-9680. Make sure to identify the docket number or notice number of this rulemaking.

**Background**

Section 25.331(c)(2) of part 25 prescribes a checked pitching maneuver in which the cockpit pitch control is first displaced in a nose up direction, then the control is displaced in the opposite direction sufficient to "check" the pitching motion. The control displacements must develop specified nose up and nose down pitching accelerations. The magnitude of these control inputs must be such that the positive limit maneuvering load factor prescribed in § 25.337 is achieved on the airplane, but not exceeded.

The corresponding requirement in JAR-25 is similar, however, there are no specific minimum pitching accelerations that must be achieved. Rather, JAR paragraph 25.331(c)(2) requires a rational motion. This rational motion is not defined in the rule but the associated advisory material, Advisory Circular Joint (ACJ) 25.331(c)(2), prescribes a control motion in the form of a sine wave. This control motion is applied with the initial movement in the nose-up direction so that the maximum positive limit maneuvering load factor is achieved. As a separate condition, the control motion is applied with the initial movement in the nose-down direction, so that a maneuvering load factor of 0g is reached. In both cases, the control motion is applied at a frequency related to the short-period rigid body mode of the

airplane. The short-period rigid body mode is one of the two longitudinal stability modes that are inherent in every airplane and identified during the design phase.

The main criticism of the current FAR requirement is that the pitching accelerations are prescribed without any accounting for the size, configuration or characteristics of the airplane. In fact, the same pitching accelerations are applied to the smallest personal airplanes as to the largest jet transports. The JAR requirement, on the other hand, relates the frequency of the control motion to the frequency of the short-period rigid body mode of the airplane, thereby accounting for the characteristics of the particular airplane. Neither the FAR nor the JAR provide adequate criteria to fully account for the characteristics of advanced electronic flight control systems in which the achievable maneuvering load factors are governed by special computer control laws.

**Harmonization of Regulations**

Title 14 CFR part 25 (commonly referred to as part 25 of the Federal Aviation Regulations (FAR)) contains the airworthiness standards for transport category airplanes. Manufacturers of transport category airplanes must show that each airplane they produce complies with the relevant standards of part 25. These standards apply to airplanes manufactured within the U.S. for use by U.S.- registered operators, and to airplanes manufactured in other countries and imported to the U.S. under a bilateral airworthiness agreement.

In Europe, the Joint Aviation Authorities (JAA) developed the Joint Aviation Requirements (JAR) to provide a common set of airworthiness standards for use within the European aviation community. The airworthiness standards for European type certification of transport category airplanes are contained in Joint Airworthiness Requirements (JAR)-25,

and are based on part 25. Airplanes certificated to the JAR-25 standards, including airplanes manufactured in the U.S. for export to Europe, receive type certificates that are accepted by the aircraft certification authorities of 26 European member countries.

Although part 25 and JAR-25 are similar, they are not identical in every respect. Differences between the FAA and the JAA standards can result in substantial added costs when airplanes are type certification to both standards. These added costs, however, often do not bring about an increase in safety. For example, part 25 and JAR-25 may use different means to accomplish the same safety intent. In this case, the manufacturer is usually burdened with meeting both requirements, although the level of safety is not increased correspondingly. The FAA and JAA have recognized that a common set of standards would not only economically benefit the aviation industry, but also would maintain the necessary high level of safety. Therefore, the FAA and JAA consider "harmonization" of the two sets of standards to be a high priority.

In 1988, the FAA, in cooperation with the JAA and other organizations representing the American and European aerospace industries, began a process to "harmonize" the airworthiness requirements of the Untied States and the airworthiness requirements of Europe.

In 1991, the FAA requested the ARAC to assume the harmonization effort. The following section describes this committee and its activities.

**The Aviation Rulemaking Advisory Committee (ARAC)**

The FAA formally established the ARAC on January 22, 1991, and announced it to the public on that same day in the Federal Register (56 FR 2190). The purpose of ARAC was to provide information, advice, and recommendations to be considered in rulemaking

activities. The FAA sought this advise to develop better rules in less overall time and using fewer FAA resources than traditionally have been needed. The committee provides the opportunity for the FAA to get firsthand information and insight from interested parties about proposed new rules or revisions of existing rules.

There are 64 member organizations on the committee, representing a wide range of interests within the aviation community. Meetings of the committee are open to the public, except as authorized by section 10(d) of the Federal Advisory Committee Act.

The ARAC sets up separate individual working groups to develop proposals to recommend to the FAA for resolving specific issues. Tasks assigned to working groups are published in the Federal Register. Working groups report directly to the ARAC, and the ARAC must accept a working group proposal before the proposal can be presented to the FAA as an advisory committee recommendation for rulemaking. (The activities of the ARAC will not, however, circumvent the public rulemaking procedures. After the FAA receives an ARAC recommendation and finds it acceptable, the FAA proceeds with the normal public rulemaking procedures. Any ARAC participation in the rulemaking package will be fully disclosed in the public docket.)

**The "Fast Track Harmonization Program"**

Despite the work that ARAC has undertaken to address harmonization, there remain a large number of regulatory differences between part 25 and JAR-25. The current harmonization process is extremely costly and time-consuming for industry, the FAA, and the JAA. Industry has expressed a strong desire to conclude the harmonization program as quickly as possible to alleviate the drain on their resources and to finally establish one acceptable set of standards.

Recently, representatives of the aviation industry (including Aerospace Industries Association of America, Inc. (AIA), General Aviation Manufacturers Association (GAMA), and European Association of Aerospace Industries (AECMA)) proposed an accelerated process to reach harmonization.

In light of a general agreement among the affected industries and authorities to expedite the harmonization program, the FAA and JAA, in March 1999, agreed upon a method to achieve these goals. This method, which the FAA has titled "the Fast Track Harmonization Program," is aimed at expediting the rulemaking process for harmonizing not only the 42 standards that are currently tasked to ARAC for harmonization, but approximately 80 additional standards for part 25 airplanes.

The FAA initiated the Fast Track program on November 26, 1999 (64 FR 66522). This program involves grouping all of the standards needing harmonization into three categories:

Category 1: Envelope – For these standards, parallel part 25 and JAR-25 standards would be compared, and harmonization would be reached by accepting the more stringent of the two standards. Thus, the more stringent requirement of one standard would be "enveloped" into the other standard. In some cases, it may be necessary to incorporate part of both the part 25 and the JAR standard to achieve the final, more stringent standard. (This may necessitate that each authority revises its current standard to incorporate more stringent provisions of the other.)

Category 2: Completed or near complete – For these standards, ARAC has reached, or has nearly reached, technical agreement or consensus on the new wording of the proposed harmonized standards.

Category 3: Harmonize – For these standards, ARAC is not near technical agreement on harmonization, and the parallel part 25 and JAR-25 standards cannot be "enveloped" (as described under Category 1) for reasons of safety or unacceptability. A standard developed under Category 3 would be mutually acceptable to the FAA and JAA, with a consistent means of compliance.

Further details on the Fast Track Program can be found in the tasking statement (64 FR 66522, November 26, 1999) and the first NPRM published under the program, Fire Protection Requirements for Powerplant Installations on Transport Category Airplanes (65 FR 36978, June 12, 2000).

The FAA had originally assigned ARAC, by notice in the Federal Register (59 FR 30081, June 10, 1994), to develop recommendations on new or revised requirements for structural loads. Task 2 of this assignment concerned the requirement to account for continuous turbulence loads for transport category airplanes. The assigned task was to review the current requirement for continuous turbulence in part 25 and JAR-25 in light of the revisions to the discrete gust requirement of Amendment 25-86 (61 FR 5218) in order to determine if the continuous turbulence requirement was still needed and if it was in need of revision to be consistent with the new discrete gust requirement of § 25.341(a). The ARAC Loads and Dynamics Harmonization Working Group completed its work on that task and has made recommendations to the FAA. That effort was then absorbed under the Fast Track program when it was established in 1999. The regulatory changes proposed in this notice result from the recommendations of ARAC submitted under the Fast Track Harmonization program.

**Discussion**

The proposed requirement would provide a checked pitching maneuver requirement that is based on the current ACJ 25.331(c)(2) but with some modifications to account for advanced flight control systems. The proposal specifies a control input in the form of a sine wave as a baseline control motion. In addition, it would be required that the sine wave input be modified to achieve as closely as possible the specified airplane load factors. In cases where the load factors are not achievable with a simple sine wave using amplitude that fits within the limits of the control stops or the pilot effort limits, a modified sine wave within these limits would be required with a dwell at the maximum control displacement. The time delay would be varied to the extent necessary to achieve the specified load factors up to a maximum time beyond which the maneuver would no longer be considered rational.

**Paperwork Reduction Act**

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. We have determined that there is no new information collection requirements associated with this proposed rule.

**International Compatibility**

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has reviewed the corresponding ICAO Standards and Recommended Practices and has identified no differences with these proposed regulations.

**What Regulatory Analyses and Assessments Has the FAA Conducted?**

**Regulatory Evaluation Summary**

Proposed changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic effect of regulatory changes on small entities. Third, the Trade Agreements Act (19 U.S.C. section 2531-2533) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act also requires the consideration of international standards and, where appropriate, that they be the basis of U.S. standards. And fourth, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector of $100 million or more annually (adjusted for inflation).

The FAA has determined that this proposal has no substantial costs, and that it is not "a significant regulatory action" as defined in Executive Order 12866, nor "significant" as defined in DOT's Regulatory Policies and Procedures. Further, this proposed rule would not have a significant economic impact on a substantial number of small entities, would reduce barriers to international trade, and would not impose an Unfunded Mandate on state, local, or tribal governments, or on the private sector.

The DOT Order 2100.5 prescribes policies and procedures for simplification, analysis, and review of regulations. If it is determined that the expected impact is so minimal that the

proposed rule does not warrant a full evaluation, a statement to that effect and the basis for it is included in the proposed regulation. Accordingly, the FAA has determined that the expected impact of this proposed rule is so minimal that the proposed rule does not warrant a full evaluation. The FAA provides the basis for this minimal impact determination as follows:

Currently, airplane manufacturers must satisfy both part 25 and the European JAR-25 standards to certificate transport category aircraft in both the United States and Europe. Meeting two sets of certification requirements raises the cost of developing a new transport category airplane often with no increase in safety. In the interest of fostering international trade, lowering the cost of aircraft development, and making the certification process more efficient, the FAA, JAA, and aircraft manufacturers have been working to create, to the maximum possible extent, a single set of certification requirements accepted in both the United States and Europe. As explained in detail previously, these efforts are referred to as "harmonization."

This proposal concerns the design loads associated with the checked pitching maneuver and is necessary because differences between the current U.S. and European requirements impose unnecessary costs on airplane manufacturers. This proposed rule results from the FAA's acceptance of recommendations made by ARAC. We have concluded that, for the reasons previously discussed in the preamble, the adoption of the proposed requirements in 14 CFR part 25 is the most efficient way to harmonize these sections and in so doing, the existing level of safety will be preserved.

There was consensus within the ARAC members, comprised of representatives of the affected industry, that the requirements of the proposed rule will not impose additional costs

on U.S. manufacturers of part 25 airplanes. We have reviewed the cost analysis provided by industry through the ARAC process. A copy is available through the public docket. Based on this analysis, we consider that a full regulatory evaluation is not necessary.

We invite comments with supporting documentation regarding the regulatory evaluation statements based on ARAC's proposal.

**Initial Regulatory Flexibility Determination**

The Regulatory Flexibility Act (RFA) of 1980, 50 U.S.C. 601-612, as amended, establishes "as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation." To achieve that principle, the RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant impact on a substantial number of small entities. If the determination is that the rule will, the Agency must prepare a regulatory flexibility analysis as described in the RFA.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

The FAA considers that this proposed rule would not have a significant impact on a substantial number of small entities for two reasons:

First, the net effect of the proposed rule is minimum regulatory cost relief. The proposed rule would require that new transport category aircraft manufacturers meet just one certification requirement, rather than different standards for the United States and Europe. Airplane manufacturers already meet or expect to meet this standard as well as the existing 14 CFR part 25 requirement.

Second, all U.S. transport-aircraft category manufacturers exceed the Small Business Administration small-entity criteria of 1,500 employees for aircraft manufacturers. The current U.S. part 25 airplane manufacturers include: Boeing, Cessna Aircraft, Gulfstream Aerospace, Learjet (owned by Bombardier), Lockheed Martin, McDonnell Douglas (a wholly-owned subsidiary of The Boeing Company), Raytheon Aircraft, and Sabreliner Corporation.

Given that this proposed rule is minimally cost-relieving and that there are no small entity manufacturers of part 25 airplanes, the FAA certifies that this proposed rule would not have a significant impact on a substantial number of small entities.

**International Trade Impact Assessment**

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. In addition, consistent with the Administration's belief in the general superiority and desirability of free trade, it is the policy of the Administration to remove or diminish to the extent feasible, barriers to international trade, including both barriers affecting the export of American goods and services to foreign

countries and barriers affecting the import of foreign goods and services into the United States.

In accordance with the above statute and policy, the FAA has assessed the potential effect of the proposed rule and has determined that it supports the Administration's free trade policy because this rule would use European international standards as the basis for U.S. standards.

**Unfunded Mandates Reform Act**

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), codified in 2 U.S.C. 1532-1538, enacted as Public Law 104-4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate in a proposed or final agency rule that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more (adjusted annually for inflation) in any one year.

This proposed rule does not contain a Federal intergovernmental or private sector mandate that exceeds $100 million in any year; therefore, the requirements of the Act do not apply.

**Regulations Affecting Interstate Aviation in Alaska**

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the Administrator, when modifying regulations in title 14 of the CFR in manner affecting interstate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish such regulatory distinctions as he or she considers appropriate. Because this proposed rule would apply to the certification of future designs of transport category airplanes and their subsequent operation, it could, if

adopted, affect interstate aviation in Alaska. The FAA therefore specifically requests comments on whether there is justification for applying the proposed rule differently in interstate operations in Alaska.

**Executive Order 13132, Federalism**

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. We determined that this action would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, we determined that this notice of proposed rulemaking would not have federalism implications.

**Environmental Analysis**

FAA Order 1050.1D defines FAA actions that may be categorically excluded from preparation of a National Environmental Policy Act (NEPA) environmental impact statement. In accordance with FAA Order 1050.1D, appendix 4, paragraph 4(j), this proposed rulemaking action qualifies for a categorical exclusion.

**Energy Impact**

The energy impact of the notice has been assessed in accordance with the Energy Policy and Conservation Act (EPCA) Pub. L. 94-163, as amended (42 U.S.C. 6362) and FAA Order 1053.1. It has been determined that the notice is not a major regulatory action under the provisions of the EPCA.

**Lists of Subjects**

**14 CFR Part 25**

Aircraft, Aviation safety, Reporting and record keeping requirements, Safety, Transportation.

**The Proposed Amendment**

In consideration of the foregoing, the Federal Aviation Administration (FAA) proposes to amend part 25 of Title 14, Code of Federal Regulations, as follows:

PART 25 - AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

1. The authority citation for Part 25 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

2. Section of § 25.331 is amended by revising paragraph (c) as follows:

§ 25.331 Symmetric maneuvering conditions.

* * * * *

(c) Maneuvering pitching conditions. The following conditions must be investigated:

(1) * * *

(2) Checked maneuver between $V_A$ and $V_D$. Nose up checked pitching maneuvers must be analyzed in which the positive limit load factor prescribed in § 25.337 is achieved. As a separate condition, nose down checked pitching maneuvers must be analyzed in which a limit load factor of 0g is achieved. In defining the airplane loads the cockpit pitch control motions described in sub-paragraphs (i), (ii), (iii) and (iv) of this paragraph must be used:

(i) The airplane is assumed to be flying in steady level flight at any speed between $V_A$ and $V_D$ and the cockpit pitch control is moved in accordance with the following formula:

$$\delta(t) = \delta_1 \sin(\omega t) \quad \text{for} \quad 0 \leq \omega t \leq t_{max}$$

where—

$\delta_1$ = the maximum available displacement of the cockpit pitch control in the initial direction, as limited by the control system stops, control surface stops, or by pilot effort in accordance with § 25.397(b);

$\delta(t)$ = the displacement of the cockpit pitch control as a function of time. In the initial direction $\delta(t)$ is limited to $\delta_1$. In the reverse direction, $\delta(t)$ may be truncated at the maximum available displacement of the cockpit pitch control as limited by the control system stops, control surface stops, or by pilot effort in accordance with 25.397(b);

$t_{max}$ = $3\pi/2\omega$;

$\omega$ = the circular frequency (radians/second) of the control deflection taken equal to the undamped natural frequency of the short period rigid mode of the airplane, with active control system effects included where appropriate; but not less than:-

$$\omega = \frac{\pi V}{2V_A} \text{ radians per second;}$$

Where:

V = the speed of the airplane at entry to the maneuver.

$V_A$ = the design maneuvering speed prescribed in § 25.335(c)

(ii) For nose-up pitching maneuvers the complete cockpit pitch control displacement history may be scaled down in amplitude to the extent just necessary to ensure that the positive limit load factor prescribed in § 25.337 is not exceeded. For nose-down pitching maneuvers the complete cockpit control displacement history may be scaled down in

amplitude to the extent just necessary to ensure that the normal acceleration at the c.g. does not go below 0g.

(iii) In addition, for cases where the airplane response to the specified cockpit pitch control motion does not achieve the prescribed limit load factors then the following cockpit pitch control motion must be used:

$\delta(t) = \delta_1 \sin(\omega t)$ for $0 \le t \le t_1$

$\delta(t) = \delta_1$ for $t_1 \le t \le t_2$

$\delta(t) = \delta_1 \sin(\omega[t + t_1 - t_2])$ for $t_2 \le t \le t_{max}$

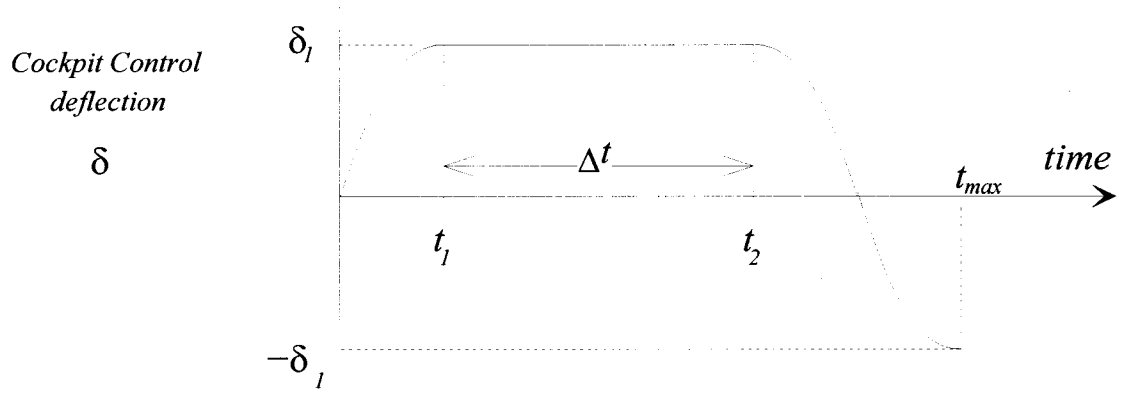
where——

$t_1 = \pi/2\omega$

$t_2 = t_1 + \Delta t$

$t_{max} = t_2 + \pi/\omega$;

$\Delta t$ = the minimum period of time necessary to allow the prescribed limit load factor to be achieved in the initial direction, but it need not exceed five seconds (see figure below).



(iv) In cases where the cockpit pitch control motion may be affected by inputs from systems (for example, by a stick pusher that can operate at high load factor as well as at 1g) then the effects of those systems shall be taken into account.

(v) Airplane loads that occur beyond the following times need not be considered:

(1) For the nose-up pitching maneuver, the time at which the normal acceleration at the c.g. goes below 0g;(2) For the nose-down pitching maneuver, the time at which the normal acceleration at the c.g. goes above the positive limit load factor prescribed in § 25.337;

(3) $t_{max}$.

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f:/home/jthor/rules/checknp1.doc

revised 12-29-97: Minor editorial corrections, add additional boilerplate

revised 7-27-98: To incorporate ANM-7 comments and additional boilerplate

checknp2.doc

4-27-01: Revised boilerplate and new APO boilerplate

FAA Action:  Placed on the AVS “Do By Other Means” list, dated June 14, 2005.